

Thorpe, 704 Beat Blackjack

By Jeff Levinger '63

Edward O. Thorp, an instructor in MIT's Mathematics Department, has recently published preliminary results of a study on "A Favorable Strategy for Blackjack." Intrigued by the possible applications of probability and game theory to the standard gambling games, Thorp has visited every major casino and numerous minor establishments in Nevada, over 80 in all. Those of lesser significance, or ones he has been unable to reach, have been researched with the aid of questionnaires. His extensive study of variations in rules and betting procedures in professional gambling haunts lends his added air of authority to his report, impressive on its own merits. Analysis of present variations shows a corresponding change in expectation of, at most, .005 from the theoretical figures.

Complex Model with Computer

Thorp refers to an earlier study of blackjack which considered the game from the standpoint of independent trials, i.e., the player does not keep track of cards already used. Simplifying assumptions were necessary to keep the computations within the bounds of a desk calculator.

With the advantage of a high speed computer, it was possible to dispense with many of these approximations. The former value of player expectation (winnings) was — .62%, least unfavorable among current gambling games. The new result is — .21% for a one player game. In addition, the computer allowed consideration of unused sets of arbitrary composition of cards, thus making possible calculations on the basis of seen cards. The consequent dependent trial viewpoint "makes the determination of a winning strategy possible."

Strategy and Subsets

Certain subsets were investigated using the computer as to changes in expectation. When all cards of a given value are gone, expectation of the player can be radically altered. One pleasantly unexpected result was the information that when all the fives are gone, expectation rises to an extremely favorable 3.29%. The three pairs on either side of five (4-6, 3-7, 2-8) show relatively symmetric decrease in expectation, though all are favorable. Thus a player using this information would bet minimal amounts until, paying attention only to the chosen subsets, the expectation became strongly favorable. He then would wager the allowable maximum, with strong likelihood of success. The larger the ratio of allowable maximum-to-minimum bet, the closer the results will fit the theoretical projection. Though relatively infrequent, these subsets do provide winning strategies.

A strategy based on the proportion of tens remaining provides definite though small player advantage nearly half the time. Programming the computer to simulate actual blackjack play would enable more comprehensive strategies, applicable to the greater number of situations, to be evolved and investigated. Offers of assistance from experienced programmers would be welcome.

Profit-Piercing Probabilities

Widespread publicity followed the publication of the report, though blackjack-veteran reporters remain rather skeptical, even scornful. Offers of money and requests for the system have flooded Thorp's mail. Offers of free room and board have come from Las Vegas casinos, where professionals are eager for anyone with the \$3200 that the system suggests offers \$10 hourly profit. With proper assurances, Instructor Thorp may take a trip, and make a test which could force alteration of the time-honored rules of blackjack with modern mathematics.

UAP Candidates Uncommitted

Elections Scheduled for March 14

Elections for Undergraduate Association President and Class Officers for next year will be held on Tuesday, March 14. Besides the officers of the classes of '62, '63 and '64, the permanent officers for the class of '61 and the members of the Senior Executive Committee will be elected.

Those interested in running for either UAP or class officers must file their petitions with the Institute Committee by Friday, March 3. The forms for the petitions and detailed information may be obtained in the Litchfield Lounge of Walker Memorial.

As yet, no one has definitely announced his candidacy, but The Tech expects to receive statements from prospective candidates by next week. Among those names now being mentioned in student government circles as likely to run are: Frank Osha of Burton House; Juri Toomri of East Campus; Robert Huff, East Campus; Mike Jablow, Pi Lambda Phi; Ed Linde, Sigma Alpha Mu; and Joe Vittek, Sigma Phi Epsilon.

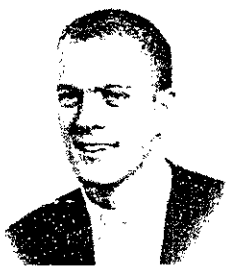
After electioneering starts, candidates will visit the various dormitories on campus to explain their stand on election issues. Elections will take place in the lobbies of Buildings 10 and 2.

Elections for Freshman Section Leaders will be held next week during the second or third meetings of the 21.02 classes. Posters will be up announcing these elections which will be run by a member of the Student Council.

Area Coaches Pick Tech Star to All-New England Team

Dave Koch, high scoring center of Tech's much-improved basketball squad, has been named to the All-New England first team by a vote of the coaches of the Greater Boston area.

The 6'4" junior from Wichita, Kansas, is currently the leading scorer in the Boston collegiate circuit with an average of 24 points per game and is among the top thirty scorers in the nation. Coach John Barry had been named coach of the week by the same group earlier in the season.



Dave Koch

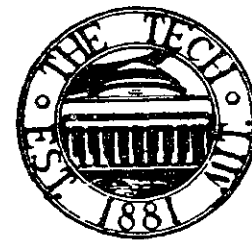
Group Investigates Small Businesses

A group known as the 1961 Business Search group is reversing the usual procedure of job recruiting. The group has organized to search out job positions in small companies throughout the U.S.

Members of the group are completing graduate courses leading to the M.S. degree in Industrial Management in June. They feel that a smaller company offers a better chance to use the varied tools of Industrial Management's diversified program.

The Tech Discloses Vol. LXXXI Board

At a special all-staff banquet on January 20th, The Tech made known the names of the newly elected Board of Directors of Volume LXXXI. This year's chairman, Linda G. Sprague, acting as master of ceremonies, announced the following new officers: Chairman, Charles Muntz '62; Managing Editor, Thomas Brydges '62; Editor, Carl Wunsch '62; News Editor, Edward Goldblum '63; Sports Editor, Sandy Wagner '61; Business Manager, Pete Thurston '62; Photography Editor, Curtiss Wiler '63.



Foundation Awards MIT \$475,000 For Center

The Carnegie Corporation of New York announced Monday the award of a \$475,000 grant to MIT for studies in connection with the Center for International Studies. The grant is to be used for research into the politics of transitional societies. The work deals with the problems encountered in "nation-building," particularly in the emerging nations in Africa and Asia.

The grant will facilitate enlargement of the graduate instruction and research in this field. Eight fellowships annually will include both professional and student research at the Center for International Studies. The members participating in this program will include sociologists, historians, economists, political scientists, and anthropologists.

Goldwater Lectures On Conservatism At Kresge Tonight

Republican Senator Barry M. Goldwater of Arizona will speak tonight at 8 p.m. in Kresge Auditorium in a free lecture presented by the Lecture Series Committee. Senator Goldwater is said to be the most outspoken proponent of the conservative school of government currently in the public eye. He is the author of the best-selling political work, *Conscience of a Conservative*.

The name of Senator Goldwater was placed in nomination in opposition to that of Vice-President Nixon for the Presidency, at the Republican Convention, and although he did not receive the nomination, his name appeared in the November election when unpledged electors from Louisiana cast their votes for him as Vice-President. Senator Goldwater's address will be titled "Principles of Conservatism" and is expected to be well attended.

In 1960 the Physical Plant consumed 1,668,466 gallons of oil; 26,160 kilowatts of electricity; 397,968,100 lbs. of steam; 267,281, 100 cu. ft. of gas and 3,375 cases of paper towels.

The existing programs in the Center will set the pattern for the expansion of the program. Work has been carried out on the economic development of India, evolution of Indonesian society in the postwar period, the structure of Burmese politics, and the economic and political development of the new African countries.

Part of the work is guided toward an improvement of United States policies toward these emergent nations. The Center is now doing work under the sponsorship of the Senate Foreign Relations Committee on the effects of American foreign policy.

MIT Offers Course On Arms Problems

Thanks to the efforts of Dick Stein '62 and Don Shakow '62, MIT now has a course on arms control, more formally known as "Problems of Armaments and Arms Control in the Context of the Present World Struggle." Last term, the movement to create such a course was begun by these two juniors, and as a result of their work, the Department of Economics and Social Science decided to offer an eight hour course on this subject. It will be taught by Professor L. P. Bloomfield who is associated with MIT's Center for International Studies and a former member of the State Department as well.

Enrollment of the courses was made available to anyone interested, as no prerequisites were required "other than a general knowledge of current events." Due to this, as well as to the fact that students from Harvard were permitted to enroll, the group taking this course will come from varied backgrounds.

The course will be centered about weekly seminars, with lectures by noted speakers arranged whenever possible. The two-hour weekly sessions will commence with a lecture by Professor Bloomfield, proceeding then to discussions with groups of six or seven, each group hopefully chaired by a faculty member.

Students Protest Rockwell



Many MIT students participated in the demonstration against Nazi picketing of the movie Exodus last month. See page 3 for story and more photos. — Photo by Curtiss Wiler '63

Erich Leinsdorf Brilliantly Conducts Symphony

Though Erich Leinsdorf has been heard in Boston before, as conductor of the Metropolitan Opera, his recent appearance is his first with the Boston Symphony. He chose an opening program well suited to justify his solid reputation as an eminent Mozartean, wide-ranging opera conductor, and impressive symphonic interpreter. Leinsdorf's own arrangement of interludes from Richard Strauss' opera, "Die Frau ohne Schatten", gave the audience an impressive glimpse of this vast but seldom heard masterpiece. Retaining Strauss' own stupendously extravagant scoring, Leinsdorf's synthesis alternated moments of shattering power with episodes of subdued and rarefied beauty, ending with quiet, mystical harmonies.

Interestingly enough, Dr. Leinsdorf conducted without a baton and substituted a suit for the customary coat and tails. Using simple but clear and expressive gestures, he elicited a fine performance of Mozart's Symphony No. 29 in A major. The symphony, scored only for strings, oboes, and horns, fully displays the maturity, freshness, and wit of its eighteen-year old composer.

Prokofiev's Symphony No. 5, Op. 100, is a large and brooding epic "about the spirit of man", composed at the height of World War II. Its chief climax comes in the third movement, Adagio, which in its stark, bleak orchestration and loping, spell-binding rhythm has always sounded to me like a scenario to the eerier moments of an Alfred Hitchcock movie. Leinsdorf conducted the first movement somewhat more broadly than expected, but invested the last three with considerable fire and drive.

— Henry McCraw '62

BRATTLE THEATRE

Last Time Anywhere — Ever

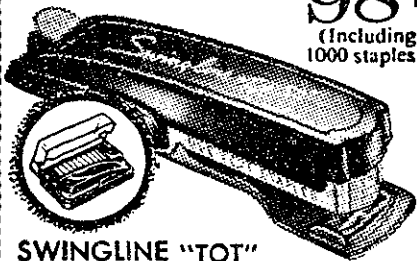
"BEAT THE DEVIL"

5:30 7:30 9:30

MAXETER
INGMAR BERGMAN'S
NEWEST FILM
THE VIRGIN SPRING

a Swingline
Stapler no
bigger than a
pack of gum!

98¢
(Including 1000 staples)



SWINGLINE "TOT"

Millions now in use. Unconditionally guaranteed. Makes book covers, fastens papers, arts and crafts, mends, tacks, etc. Available at your college bookstore.

SWINGLINE
"Cub" Stapler \$1.29



Swingline INC.
LONG ISLAND CITY, NEW YORK, N. Y.

G. L. FROST Co., Inc.
AUTOMOBILE BODY REPAIRING & REFINISHING
E. W. PERKINS
Tel. ELiot 4-9100
31 LANSLOWNE STREET
CAMBRIDGE, MASS.

What would *YOU* do as an engineer at Pratt & Whitney Aircraft?

Regardless of your specialty, you would work in a favorable engineering atmosphere.

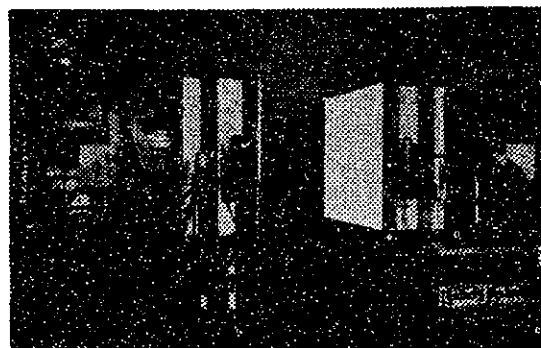
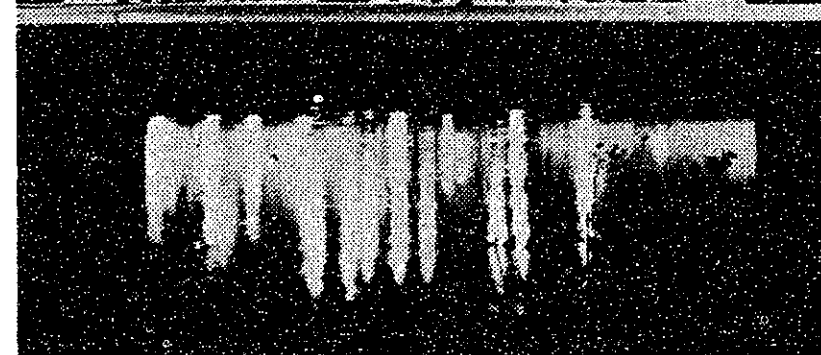
Back in 1925, when Pratt & Whitney Aircraft was designing and developing the first of its family of history-making powerplants, an attitude was born—a recognition that *engineering excellence* was the key to success.

That attitude, that recognition of the prime importance of technical superiority is still predominant at P&WA today.

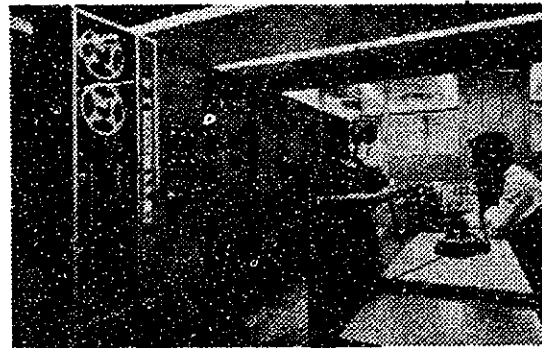
The field, of course, is broader now, the challenge greater. No longer are the company's requirements confined to graduates with degrees in mechanical and aeronautical engineering. Pratt & Whitney Aircraft today is concerned with the development of all forms of flight propulsion systems for the aerospace medium—air breathing, rocket, nuclear and other advanced types. Some are entirely new in concept. To carry out analytical, design, experimental or materials engineering assignments, men with degrees in mechanical, aeronautical, electrical, chemical and nuclear engineering are needed, along with those holding degrees in physics, chemistry and metallurgy.

Specifically, what would *you* do?—*your own engineering talent* provides the best answer. And Pratt & Whitney Aircraft provides the atmosphere in which that talent can flourish.

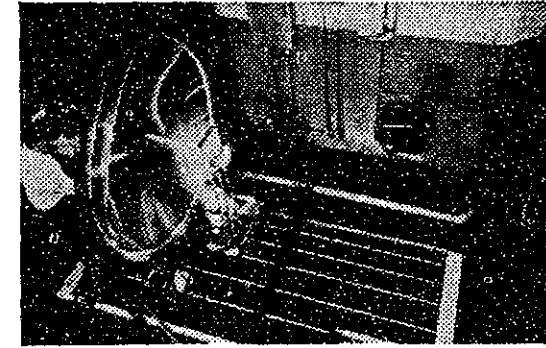
Development testing of liquid hydrogen-fueled rockets is carried out in specially built test stands like this at Pratt & Whitney Aircraft's Florida Research and Development Center. Every phase of an experimental engine test may be controlled by engineers from a remote blockhouse (inset), with closed-circuit television providing a means for visual observation.



At P&WA's Connecticut Aircraft Nuclear Engine Laboratory (CANEL) many technical talents are focused on the development of nuclear propulsion systems for future air and space vehicles. With this live mock-up of a reactor, nuclear scientists and engineers can determine critical mass, material reactivity coefficients, control effectiveness and other reactor parameters.



Representative of electronic aids functioning for P&WA engineers is this on-site data recording center which can provide automatically recorded and computed data simultaneously with the testing of an engine. This equipment is capable of recording 1,200 different values per second.



Studies of solar energy collection and liquid and vapor power cycles typify P&WA's research in advanced space auxiliary power systems. Analytical and Experimental Engineers work together in such programs to establish and test basic concepts.

World's foremost designer and builder of flight propulsion systems

PRATT & WHITNEY AIRCRAFT

Division of United Aircraft Corporation
CONNECTICUT OPERATIONS — East Hartford

FLORIDA RESEARCH AND DEVELOPMENT CENTER — Palm Beach County, Florida



For further information regarding an engineering career at Pratt & Whitney Aircraft, consult your college placement officer or write to Mr. R. P. Azinger, Engineering Department, Pratt & Whitney Aircraft, East Hartford 8, Connecticut.



In addition to the traditional water fights during Reading Period, several Burton House residents underwent "a moving religious experience" before finals.

Institute Helpers Needed For Vacation

Volunteer helpers are needed this term to work with the Institute's Centennial Week to be held this term. Most of the work will be needed during the spring vacation. Anyone interested should contact Ira Jaffe, Undergraduate Association President, or leave a message at Extension 2696.

The Foreign Opportunities Committee (MIT Peace Corps, Foreign Jobs, etc.) is also looking for new members. Those interested in serving on the Committee should notify Ira Jaffe.

Students Voice Opinions About Nazis Movement



— Photos by Conrad Grundlehner '64, (top right), Curtiss Wiler '63 (top left, side).

Many members of the MIT community turned out despite cold winds and rain to demonstrate against the picketing by Lincoln Rockwell and his American Nazi Party at the Saxon Theater in Boston, where the movie *Exodus* was being shown. Advance publicity given the event by the Socialist Party and other groups resulted in a turnout variously estimated as high as two thousand, which apparently intimidated the prospective picketers, for only Rockwell and two "storm troopers" appeared. The efficient Boston Police intercepted a group of others and ushered them out of the state.

Individuals and groups, notably one from East Campus, joined in the picketing, which was generally orderly until Rockwell appeared.



SKIING

Stowe, Sugarbush, Mt. Mansfield \$17 includes food, transportation, and lodging. Leave Fri. night Feb. 24, return Sun. night Feb. 26. American Youth Hostels Sponsored. Call Charles Krabek — ED 5-2024 (7-9 p.m.)

\$2.85 Gets \$5,000

SBLI Yes, a man age 30 can get \$5,000 of Savings Bank Life 5-Year Renewable Term Insurance for only \$2.85 monthly. For age 20 it's \$2.25; 25, \$2.50; 35, \$3.45; 40, \$4.35. Annual dividends reduce these costs even more! Ask for folder giving rates at your age.

CAMBRIDGEPORT SAVINGS BANK
(Right in Central Sq.)
Cambridge, Mass.
Phone UN 4-5271

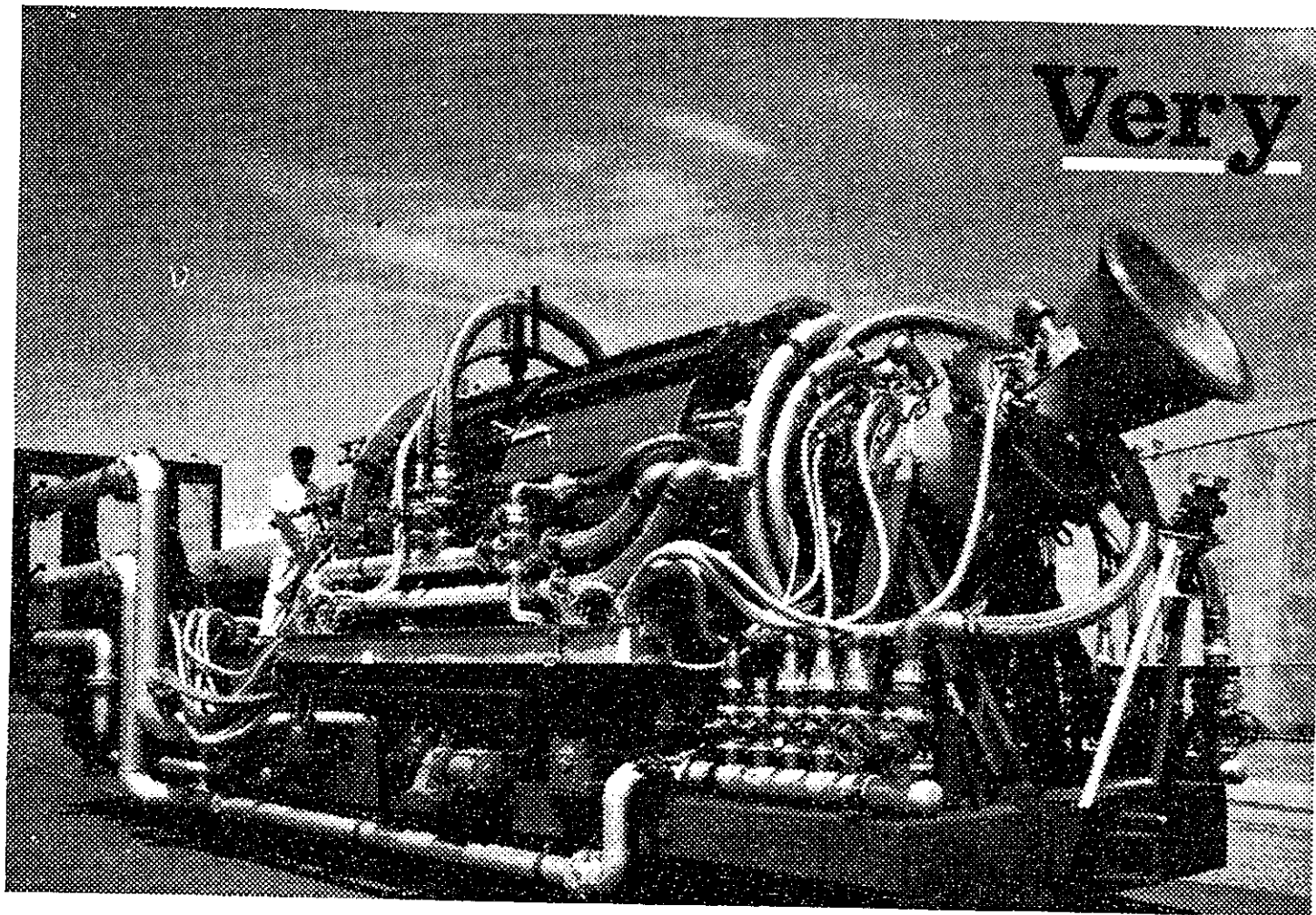
APO Supplement To Be Distributed

Alpha Phi Omega is now preparing the spring term supplement of the Undergraduate Telephone Directory. It will include those students whose names were omitted or incorrectly listed originally or who have changed addresses since publication of the Directory.

In order to facilitate preparation of the directory, off-campus residents are requested to sign the lists on the Institute bulletin boards.

Ladies!!
Student Wives!!
Do temporary office assignments in Boston and environs
Earn extra dollars
Excellent hourly rates
No fee to you
All office skills required
Olsten's of Boston
Temporary Office Personnel
41 Tremont St., Room 200
CApitol 7-0700
Diagonally across from PARKER HOUSE

Three room apartment, Harvard Square, to sublease from March 1 or mid-February until September 1. Release optional. 2 Greenough Ave.
Call UN 8-6749.



Tory IIA is the first of a series of test reactors being developed under the Lawrence Radiation Laboratory's nuclear ramjet program.

A reactor for ramjet propulsion must operate at high power levels yet be of minimum size and mass. Its design must consider the very high pressure drop across its length, the stress loads due to flight maneuvering, and the extremely

high radiation flux level which itself leads to severe heat transfer and radiation damage problems. Because the operating temperature exceeds that at which most conventional structural materials fail, the core itself consists of bundled tubes of sintered uranium and beryllium oxide fabricated with central holes for continuous air passage.

Very unusual

ONE OF MANY unusual projects at the Lawrence Radiation Laboratory—the *only* national laboratory active in virtually all phases of the atomic energy program.

ON FEBRUARY 16 AND 17

Lawrence Radiation Laboratory staff members will be on campus to answer your questions about a career in nuclear research.

They will interview outstanding:

electronic engineers
physicists
mathematicians
mechanical engineers (MS, Ph D)

Call your placement office for an appointment.

LAWRENCE RADIATION LABORATORY

of the University of California
Berkeley & Livermore, California
(San Francisco Area)

The Tech



Vol. LXXXI February 10, 1961 No. 1

Chairman Charles Muntz '62
Business Manager Peter Thurston '62
Managing Editor Thomas Brydges '62
Editor Carl I. Wunsch '62
News Editor Edward J. Goldblum '63
Sports Editor William J. Wagner, Jr. '61
Photography Editor Curtiss Wiler '63

Advertising Manager John Barnard '63
Circulation Manager Doug Floyd '64
Associate Business Manager Howard Kirkendall '63
Associate Managing Editor Joseph Hanlon '63
Associate News Editor Richard U. Bayles '63
Associate Sports Editor Paul Robertson '61
Treasurer Elliot Savitz '63

Business Board: Bart Weitz '63
John Downie '64
Carl Mampaey '63

Managing Board: Barry Blesser '64
Editorial Board: Howard Hershberger G
Elwyn Berlekamp '62
Toby Zidle '63

News Board: Lita Donnelly '64
John Drumheller '64
Grover Gregory '64
Bert Knight '64

Sports Board: Jeff Levinger '63
Ed Schneider '62
Albert Gleim '62

Photography Board: Chris Ritz '64
Conrad Jaffee '63
Allan Rosenburg '63

Deadlines: Advertising — Noon Monday
Entertainment — 2 p.m. Tuesday
Photography, Letters to the Editor — 3 p.m. Wednesday
News, Sports — 8 p.m. Wednesday
Makeup: Entertainment — 4 to 5 p.m. Tuesday
News, sports, editorials — 7 to 11 p.m. Wednesday

THE TECH is entered as second class matter at the post office at Boston, Massachusetts. Published every Friday during the college year, except college vacations, by THE TECH, Walker Memorial (50-211), Cambridge 39, Mass. Telephone: TRowbridge 6-5855 or -5856, or UNiversity 4-6900, extension 2731.

Volume LXXXI Born

This issue of *The Tech* marks the start of the eighty-first volume and year of publication, under a new editorial board. As MIT enters its second century, and *The Tech* its ninth decade, it is fitting that this publication should broaden its horizons much as MIT is broadening its approaches to the modern world.

With this in mind then, this newspaper approaches the coming year with the view that it is responsible, as the sole news outlet on campus, to provide a broadened coverage of campus events, and of events off campus that bear upon the MIT community. The board of this newspaper feels furthermore, that the expression of opinion upon circumstances affecting student life here are of great importance. There is a major lack of communication here at MIT; outside of the classroom there is very little exchange of ideas, of intellectual innovation. According to the Sussman report, the MIT student body is highly conservative, probably more conservative than their parents. MIT tries to be an institution of the future; it should be a source of ideas, not a sink, where the old and tired is clung to, merely because it is familiar.

Many of MIT's faculty have answered the call of the new administration in Washington to help bring about the "New Frontier". Regardless of one's politics, and regardless of one's feelings about Mr. Kennedy's approach to the problems of the world, it is clear that new ideas are in vogue, that the world is undergoing extreme and far-reaching changes. Students here

should take as great an interest in the world as does the faculty. They should at least become cognizant of the fact that they do not exist in a vacuum.

On this page in the future will be found opinions upon various aspects of campus life. It is not expected that everyone will agree with what is said here; in fact, it is hoped that not all will agree. We wish to stir up thought, not to be controversial for the sake of controversy, but to suggest alternatives, to be skeptical, and to guide. This page is available for Letters to the Editor. Faculty, students, and staff are urged to write to *The Tech* expressing their feelings about editorials in this newspaper, about MIT, or about the world at large. Note however, anonymous letters will not be printed; names will be withheld upon request. We will try to be fair to those on all sides of issues. We hope the year will be interesting.

And finally, our thanks to the board of Volume LXXX for the splendid job they did, and for their efforts to make the work of the new board as easy as possible. We aspire to do as well.

Unpopular Politics

In a letter appearing below, an MIT student expresses his distress that the Fair Play for Cuba organization was given permission by the Activities Council to make use of the MIT bulletin boards. The writer goes on to criticize *The Tech* for not voting against such permission. He holds that because most of the MIT student body does not "agree" with this organization, it should be denied the status of a Class B activity.

The right to use the MIT name and publicity facilities is a privilege, but is it a privilege to be granted according to the popularity of the ideas of the organization? Obviously, if everyone agreed with the Fair Play for Cuba group, it would have no reason for existing. Its ideas are unpopular; *The Tech* assuredly does not like Dr. Castro and does not "agree" with him. But there is certainly no reason to suppress a group trying to get a hearing for Castro's side of the question. Or is the writer concerned that the position of the United States with respect to Cuba is so weak that dissent must be stifled? We do not think this to be a problem.

The abstention of *The Tech* on this issue was a reflection of its disapproval of Dr. Castro, and of its doubts as to whether the group would actually exist more than a few months. Whether there should be a class of activity permitted to use the bulletin boards but not the MIT name is a question that must be settled soon. We are likely to see more ad hoc political groups in the future, and a policy toward them should be set. If this is not done, every group will become a political football for Activities Council.

The test for approval of a group should not be the popularity of its ideas, but only that it be made up of MIT students with a responsible aim. Otherwise all religious groups, all political groups and all publications that represent minority opinion would have to be barred from using the MIT name, since in a sense, the bulk of the student body does not "agree" with them.

LETTERS

To The Editor:

The granting of Provisional Class B status to the Fair Play for Cuba organization shocked me as much as I believe it shocked the entire MIT Community. What surprised me even more was to learn that *The Tech*, instead of voting against the group, voted to table the motion.

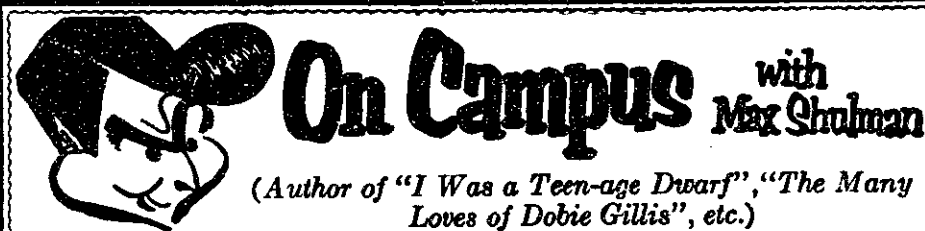
Surely, the members of Activities Council must be aware of the fact that relations between this country and Cuba are extremely strained to say the least. In addition, last year most of the student body was in agreement with the basic

principles upon which EPIC was founded. However, in any poll or survey you take today, you will find over 90% of the people to be against the Fair Play for Cuba (I should say Communists for Castro) organization. Why then should Activities Council, after rejecting EPIC, deem it wise to admit this other group?

One of the Class A activities (*The Tech*, I believe) seems to be in favor of granting a "Class D" status to ad hoc political groups. By a strict definition of terms, both the Young Republican Club and Young Democratic Club at MIT would fall under this heading. This "Class D" status would entitle a group to all of the rights of a Class B

group with the exception that they would not be permitted to use MIT in conjunction with their name. To me, this seems ridiculous. Any group worthy of being recognized, is worthy, or should be worthy of the prefix "MIT". The fact is that some of these ad hoc political groups are worthy of recognition while others are not. Activities Council should make it a point to get a general consensus of opinion on a group before taking action. I would go one step further and suggest that *The Tech* initiate and back a referendum of the Student Body to reverse this latest decision of Activities Council.

— Melvin Potash, Jr. '63



(Author of "I Was a Teen-age Dwarf", "The Many Loves of Dobie Gillis", etc.)

HOW SMALL CAN YOU GET?

Today let us address ourselves to a question that has long rocked and roiled the academic world: Is a student better off at a small college than at a large college?

To answer this question it is necessary first to define terms. What, exactly, do we mean by a *small* college? Well sir, some say that in order to be called truly small, a college should have an enrollment of not more than four students.

I certainly have no quarrel with this statement; a four-student college must unquestionably be called small. Indeed, one could even call it *intime* if one knew what *intime* meant. But I submit there is such a thing as being too small. Take, for instance, a recent unfortunate occurrence at Crimscott A and M.

Crimscott A and M, situated in a pleasant valley nestled between Denver and Baltimore, was founded by A. and M. Crimscott, two brothers who left Ireland in 1706 to escape the potato famine of 1841. As a result of their foresight, the Crimscott brothers never went without potatoes for one single day of their lives—and mighty grateful they were! One night, full of gratitude after a hearty meal of French fries, cottage fries, hash browns, and au gratin, they decided to show their appreciation to this bountiful land of potatoes by endowing a college. They stipulated that enrollment should never exceed four students because they felt that only by keeping the college this small



The fullback was stolen by gypsies

could each student be assured of the personalized attention, the camaraderie, the feeling of *belonging*, that is all too often lacking in higher education.

Well sir, things went along swimmingly until one Saturday a few years ago. On this day Crimscott had a football game scheduled against Minnesota, its traditional rival. Football was, of course, something of a problem at Crimscott, what with only four students enrolled in the entire college. It was easy enough to muster a backfield, but finding a good line—or even a bad line—baffled the most resourceful coaching minds in the country.

Well sir, on the morning of the big game against Minnesota, its traditional rival, a capricious destiny dealt Crimscott a cruel blow—in fact, four cruel blows. Sigafos, the quarterback, woke up that morning with the breakbone fever. Wrichards, the slotback, was unable to start his motorcycle. Beerbohm-Tree, the wingback-tailback, got his necktie caught in his espresso machine. Langerhans, the fullback, was stolen by gypsies.

Consequently, alas, none of the Crimscott team showed up at the game, and Minnesota, its traditional rival, was able to score almost at will. Crimscott was so out of sorts that they immediately broke off football relations with Minnesota, its traditional rival. This later became known as the Dred Scott Decision.

So you can see how only four students might be too small an enrollment. The number I personally favor is twenty. How come? Because when you have twenty students and one of them opens a pack of Marlboro Cigarettes, there are enough to go around for everybody, and no one has to be deprived of Marlboro's fine, mild flavor, of Marlboro's easy-drawing filter, of Marlboro's joy and zest and steadfast companionship, and as a result you have a student body that is filled with sweet content and amity and harmony and concord and togetherness and soft pack and flip-top box.

That's how come.

© 1961 Max Shulman

You will also find twenty cigarettes—twenty incomparable unfiltered king-size cigarettes—in each pack of Marlboro's new partner in pleasure—the Philip Morris Commander. Welcome aboard!

A young conductor — James Dixon — will lead the Conservatory Symphony Orchestra at Jordan Hall this Wednesday at 8:30. The superb "Eroica" by Beethoven and Moussorgsky-Ravel's Pictures at an Exhibition are on the slate and should provide a very worthwhile evening's enjoyment.

Or, if your tastes run along another line, Carmen McRae may interest you at Storyville in the Bradford Hotel.

Nearer at home, the Hayden Gallery here at the institute will have major paintings from the Whitney Museum on display until February 28. These paintings — 30 oils and 7 watercolors — are an expression of the progress of American art. I have seen them and found them most intriguing. Definitely worth taking out an hour or so to see.

If your looking for folklore concerts Jordan Hall might be worth looking into Saturday at 8:30. William Clauson and his guitar promises to be a sensation in the field with his tenor voice. If he can please the New York Times he must be something out of the ordinary.

Going abroad? Well, even if you only wish you were, the series of lectures illustrated with slides being given in the Trustees Room of the Boston Museum should prove first-rate. The lectures are every Tuesday night at 7 and include such topics as the "Monuments of Rome," "Galleries of Paris," and "Small Towns of Spain." Art and architecture will be emphasized, but an attempt is made to keep the scope quite broad.

A marvelous soprano will sing in the MIT Chapel to the accompaniment of the organist, Thomas Curtis. The soprano, Louise Curtis, received her musical training in Boston and New York. There will be ten selections. It will be held February 12 at 4 p.m. This concert is the first Sunday afternoon organ concert in the MIT Chapel since the Christmas season and is open to the public free of charge.

For those interested in opera, Boston University is holding its audition sessions through February 15. They are being held at the School of Fine and Applied Arts Auditorium. It is under the leadership of Prof. Ludwig Bergmann and N.Y.C. soprano Adelaide Bishop. Although a non-credit course, there is not a finer opportunity in Boston for those interested. Although relatively quiet, Boston still contains ample opportunity for first class entertainment this week. Don't miss the spectacles of Tremont Street.

Review of Erich Leinsdorf will be found on page 2.

Josh White To Perform At MIT

The second concert of the MIT Choral Society's Guest Artist Series will present Josh White on Friday evening, at 8:30 p.m., in Kresge Auditorium, with seats by reservation only.

Josh is ranked with the greatest of the folksingers of our time. The key to his tremendously successful career throughout the thirties, forties and fifties undoubtedly stems from the imagination and deep emotional feeling which he injects into each song that he sings, and he is still referred to as the "Daddy" of the folksingers.



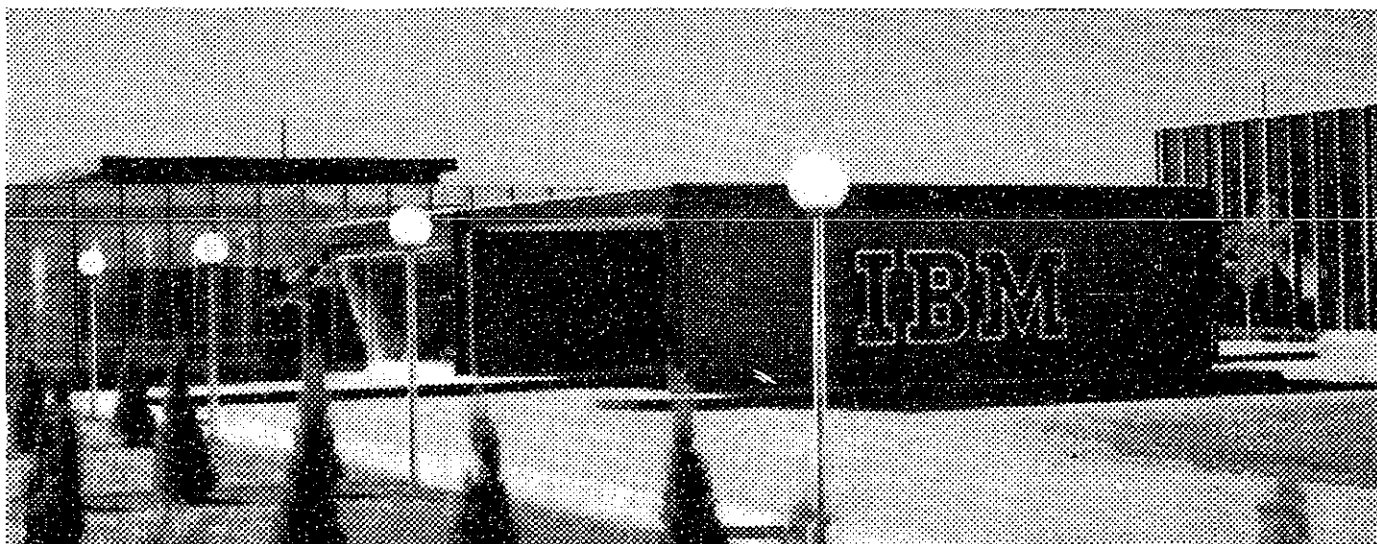
Josh White, who will be at MIT on Friday, February 17 at 8:30.

The Terh needs



The Terh is now planning a **larger** paper with **increased** coverage, but additional staff members, particularly make-up men and newswriters, are needed. Experience preferred but not necessary. Call Tom Brydges, Managing Editor, Wal. 412 or The Terh, ext. 2731 or come to The Terh, 50-211 (Walker Memorial) any Wednesday night (7-11 p.m.).

IBM WILL INTERVIEW MARCH



Candidates for Bachelors or Masters Degrees are invited to discuss opportunities in:

Marketing and Sales Engineering and Science

This is a unique opportunity to find out about the many career opportunities at IBM. The IBM representative can discuss with you typical jobs, various training programs, chances for advanced education, financial rewards, and company benefits—all important factors that affect your future.

SOME FACTS ABOUT IBM

An Unusual Growth Story: IBM has had one of the exceptional growth rates in industry. It has been a planned growth, based on ideas and products having an almost infinite application in our modern economy.

Diverse and Important Products: IBM develops, manufactures and markets a wide range of products in the data processing field. IBM computers and allied products play a vital

role in the operations of business, industry, science, and government.

Across-the-Country Operations: Laboratory and manufacturing facilities are located in Endicott, Kingston, Owego, Poughkeepsie and Yorktown, N. Y.; Burlington, Vermont; Lexington, Ky.; San Jose, Calif.; Bethesda, Md.; and Rochester, Minn. Headquarters is located in New York City with sales and service offices in 198 major cities throughout the United States.

The Accent is on the Individual: No matter what type of work a person does at IBM, he is given all the responsibility he is able to handle, and all the support he needs to do his job. Advancement is by merit.

The areas in which IBM is engaged have an unlimited future. This is your opportunity to find out what that future has to offer you.

Call or stop in at your placement office to arrange an appointment with the IBM representative for the date above. If you cannot attend an interview, write or call the manager of the nearest IBM office:

Mr. P. H. Bradley, Branch Manager
IBM Corporation, Dept. 882
1730 Cambridge St.
Cambridge 38, Mass.
University 4-6990



You naturally have a better chance to grow with a growth company.

DE 8-8887 麗香飯店
HOUSE of ROY
—Real Chinese Foods—
OPEN DAILY FROM 4 P.M. TO 2 A.M.
Food Put Up To Take Out
12A TYLER STREET BOSTON 11 MASS.

M Opticians — Jewelers
E 163 Mass. Ave., CO 7-0498
R (Opp. Sherry Biltmore)
I Eyeglass Watch
T Service Repairs

PSYCHOLOGY and PHYSIOLOGY TESTS

The Psychology Laboratories of the Massachusetts General Hospital are looking for male volunteers to act as subjects in psychological and physiological experiments. Testing sessions of 3 to 4 hours are on a fixed afternoon of the week for each subject. Each subject should be free to return 4 to 8 times at two week intervals. \$1.50 per hour.

Call LA 3-8200 Extension 2533

CAREERS IN LARGE-SCALE SYSTEM ENGINEERING

...the new technology

The MITRE Corporation offers graduating engineers and scientists special opportunities to broaden their disciplines along new avenues in computer-based, real-time system engineering.

System engineering and development at MITRE unites a wide spectrum of disciplines in the design, analysis and integration of electronic environments. These are composed of complex interacting communication networks, radar systems and high-speed digital computers. Their function is to collect, transmit, process and display data essential to high-level decision-making.

MITRE is technical and system engineering consultant for aerospace Command and Control Systems being developed for the United States Air Force; and also for an experimental Air Traffic Control system commissioned by the Federal Aviation Agency. In integrating the contributions of the electronics industry, MITRE, in a literal sense, places staff members at the center of the nation's electronic capability...affording unique opportunities for professional and personal growth.

Employment opportunities exist in:

- Electronic research and development of computers, communications and radars
- Operations Research
- Advanced Systems Analysis
- Feasibility Studies

CAMPUS INTERVIEWS

February 20

SEE YOUR PLACEMENT DIRECTOR TODAY
to arrange a convenient interview

THE
MITRE
CORPORATION

Post Office Box 208—Bedford, Massachusetts

A nonprofit system engineering corporation
formed under the sponsorship
of the Massachusetts Institute of Technology

Six Straight Wins

Hockey Team Rolls Over Four More Opponents

Coach Ben Martin's varsity hockey team won its sixth straight game Wednesday, downing Wesleyan, 5-3, in a contest marred by a third period free-for-all. The victory followed two mid-term conquests, over Holy Cross, 10-1, and Salem State Teachers College, 11-3. Before the vacation the Techmen dropped the University of Pennsylvania, 8-2.

The punches were traded late in the third period. Steve Levy '62 and Wesleyan's Dave Ekland came together near the Wesleyan blue line. In the melee several sticks were raised before the officials broke up the fray, with Levy and Ekland drawing roughing penalties.

Weikel Paces Scorers

Tony Weikel '63 led the Tech scoring, caging two goals, one in the first and one in the second period. Levy opened the scoring at 0:40 of the first stanza, and Weikel counted at 6:52. Mike Denny '63 found the range at 13:35. Wesleyan scored twice in the first period.

MIT missed several fine opportunities in the second period when they were one and sometimes two men up on the visitors. The lone home score came from Weikel at 12:25, and Wesleyan counted at 17:25.

Levy Scores Three

Levy gained a hat trick in the Penn game, catching the



Hank Schlienitz '61 fires a pass as a University of Pennsylvania skater tries in vain to break up the play. Captain Erik Salbu '61 looks on. Tech went on to win easily, 8-2.

— Photo by Curtiss Wiler '63

cage once in each period. Weikel hit twice in the third period, and Captain Erik Salbu '61, John Rupert '62 and Denny each scored once.

Tech dominated the play in both the Wesleyan and Penn games, but were aiming at well-guarded cages. In both contests the losing goalie recorded over forty saves.

UMass Here Tonight

Tonight's contest against UMass, on Briggs ice at 7 p.m., promises some excitement. Tech bowed to UMass earlier in the season, 4-2, in a well-played game. A recent schedule addition will bring Ft. Devens to the home rink Monday night, 7 p.m.

Trackmen Ninth In AAU Indoor Track; Lukis Cops Medal

The MIT track team continued one of its busiest seasons Wednesday night by placing ninth in the New England AAU Indoor Track Championships held at Rockwell Cage. Sixteen Colleges, twenty schools, and ten athletic clubs were represented.

Frosh Gary Lukis tied for second place in the pole vault at 11'6" but was awarded a third place medal on the basis of the number of missed tries. Joe Davis '61 added a fourth in the high hurdles for a total of three points for Tech. The meet was the seventh of a twelve-meet season for the cindermen.

In action before vacation, the varsity was downed by Bowdoin 66-47, while the yearlings were victorious 62-51. Joe Davis was high scorer for the varsity with 10 points, while Jim Flink paced the freshmen with 16½.

In the BAA meet at Boston Garden on January 28, co-captain George Withbroe '61 placed fourth in the Ryder 440. Jim Flink '64 was fifth in the finals of the 50-yard dash. In addition both varsity and freshman relay teams competed in the BAA meet and in the Knights of Columbus meet on January 14.

On Deck

Today, February 10
Hockey with UMass 7 p.m.
Rifle at BC, Wentworth

Tomorrow, February 11
Basketball with Case
8:15 p.m.

Fencing with UConn 2 p.m.
Rifle with Dartmouth 10 a.m.
Skiing at Lyndonville, Vt.
Squash at Trinity
Swimming at Trinity
Track — Greater Boston Invitational at Northeastern
Wrestling at UMass

Sunday, February 12
Skiing at Lyndonville, Vt.
Monday, February 13
Hockey with Ft. Devens
7 p.m.

Wednesday, February 15
Basketball at Bowdoin (V&F)
Fencing at Harvard
Hockey at WPI
Hockey (F) with Lawrence
4 p.m.
Squash (F) with Middlesex
3 p.m.

Thursday, February 16
Hockey (F) at Middlesex

GENERAL FOODS

Announces

ON-CAMPUS INTERVIEWS

At General Foods, one of the world's largest growth companies in the most basic of all industries — food — opportunities are open to professional people over a wide spectrum of technical and non-technical areas... in 23 divisions located throughout the United States.

Because of the scope of the company's operations, there is an excellent possibility that your career may best be served here.

We will be most happy to discuss the potential of a GF future with you, if your studies are directed along the following or related lines:

RESEARCH & DEVELOPMENT
MANUFACTURING & PRODUCTION
PLANT & MACHINE DESIGN

CAMPUS INTERVIEWS

Wednesday, February 15

SEE YOUR PLACEMENT DIRECTOR TODAY
to arrange a convenient interview



GENERAL FOODS CORP.

250 North Street • White Plains, N. Y.

Basketball Team Cops Two On Midterm Trip South

By Edward M. Schneider '62 long jump shots, sophomore Jeff Paarz led MIT to its victory over Johns Hopkins. He ended up with 19 points, five fewer than high-scorer Dave Koch.

The MIT varsity basketball team hosts Case tomorrow night in Rockwell Cage, hoping to continue the fine play that carried them to a successful 2-1 road trip between terms. During that trip, the Engineers routed Stevens Tech, 84-46, and Johns Hopkins, 77-59, after being nipped by Hartford, 70-68. Although surging to a 12-2 lead in the opening minutes, Tech could not contain the sharp-shooting Hartford cagers. Hartford connected on 46% of its floor shots compared to MIT's 37%. The Engineers' often-erratic foul shooting dipped to a low 64%. Center Dave Koch '62 contributed 32 points to the Tech effort.

Tech Bounces Back

What a change against Stevens! It was MIT all the way. Never in danger, the Engineers scored on 56% of their floor shots. Leading the squad were Koch with 31 points (73% shooting average) and Tom Burns '62 with 18 (70%).

Hitting on five of his first six

HOOP HAPPENINGS . . . Dave Koch is now the leading scorer and rebounder in the Greater Boston Area. . . . He is averaging 23.9 points per game. . . . Koch was named to this past week's All-New England basketball team. . . . Although it doesn't show in the box score, Phil Robinson '62 has been doing great work on defense for Tech. . . . With a 7-6 record, MIT is heading for its best season in quite a while. . . . This Saturday's game will be carried by WTBS starting at 8:15. . . . Tech has led at half-time in the last twelve games.

Baseball Rally

The pre-season varsity baseball meeting will be held next Wednesday at 5 p.m. in the du Pont Athletic Center conference room.

Shooters Divide Six Matches, And Set Team Record

The Rifle Team split even in six matches during midterm. The teams encountered were the strongest opposition in the eastern half of the country and three of them have suffered their first defeats of the season from the MIT squad.

The first match on Monday, January 30, resulted in a close victory over the Coast Guard Academy, 1423 to 1419. Tuesday the first loss of the trip occurred, 1421 to 1436, against St. John's University, dominant team in the New York City Metropolitan League.

The Tech team topped 1430 for the first time this season at Annapolis on Wednesday and the Midshipmen lost their first match 1434 to 1429. A loss to CCNY on Thursday, 1426 to 1428, was the only real disappointment of the trip. At Merchant Marine Academy the new team record was set. Bob Clark '63 and Richard Ludeman '63 had 290's, Bill Leffler '61 and Steve Smith '62 had 289's, and Ron Pellar '61 fired a 283 for a team score of 1441 to 1416.

How They Did

Basketball

Hartford 70 MIT 68
MIT 84 Stevens Tech 46
MIT 77 Johns Hopkins 59

Squash

Princeton 9 MIT 0
Navy 8 MIT 1
Exeter 5 MIT (F) 0

Hockey

MIT 8 Pennsylvania 2

Rifle

MIT 1423 Coast Guard 1419
St. John's 1436 MIT 1423
MIT 1434 Navy 1429

CCNY 1428 MIT 1426
MIT 1441 Merchant Marine 1416

Army 1440 MIT 1424

Swimming

MIT 61 Amherst 34

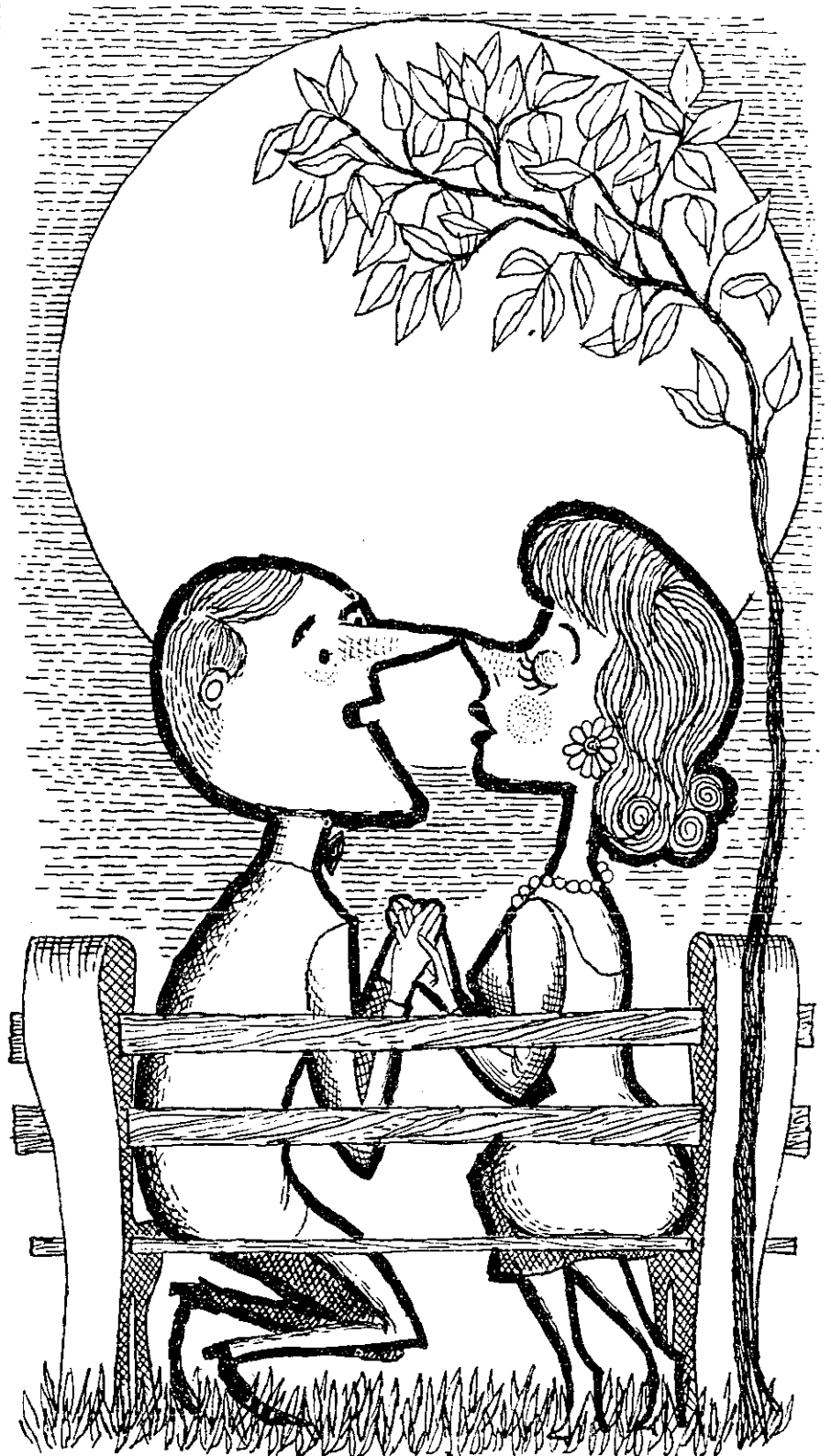
Skiing

Brown Slalom — First
Walter Foley Memorial Slalom — First
Walter Foley Memorial Downhill — First

Indoor Track

Bowdoin 66 MIT 47
MIT (F) 62 Bowdoin (F) 51
AAU New England Championship — Ninth

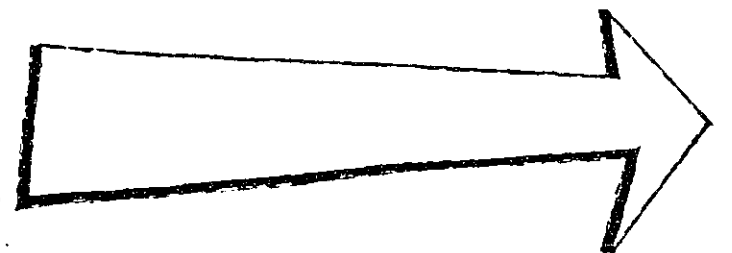
IF I HAD TO
CHOOSE BETWEEN YOU
AND SCHAEFER BEER...



When things get too close for comfort*

your best friends won't tell you...
but your opponents will!

- Old Spice Stick Deodorant brings you safe, sure, all-day protection.
- Better than roll-ons that skip.
- Better than sprays that drip.
- Better than wrestling with creams that are greasy and messy.



THE F. & M. SCHAEFER BREWING CO., NEW YORK and ALBANY, N.Y.

*Old Spice STICK DEODORANT comes to the rescue fast!

Samuel Bluestein Co.
School-Engineering Supplies
Ask About Student Discount
1080 Boylston St., Boston
CO 7-1102
345 Main St., Malden
DA 2-2315

Samuel Bluestein Co.
School-Engineering Supplies
Ask About Student Discount
1080 Boylston St., Boston
CO 7-1102
345 Main St., Malden
DA 2-2315

FARCO SCOOTERS INC.

Sales and Service
Specialized Service
On All Makes
Scooter Storage
320 Watertown St.
Newton 58, Mass.
LAsell 7-9331
DEcatur 2-7534
Open Daily From
7:00 A.M.-9:30 P.M.

Nylon Ski Parkas

6.95, 8.95

Ski Pants

9.95

Stretch Type

17.95

Parkas

BOOTS and SHOES
GLOVES — SWEATERS
Army and Navy Jackets
at Lowest Prices

**CENTRAL
WAR SURPLUS**

433 MASS. AVE.
CENTRAL SQ.
CAMBRIDGE
TR 6-8512

SOUTH SEAS

Restaurant-Lounge

21 Harrison Ave. — HA 6-4210

Superb Chinese and Polynesian

Cuisine • Exotic Island Drinks

Lush Tropical Atmosphere

Moderate Prices

Authentic Luau

Facilities for Private Parties

Catering Service, Take-out Orders

11 a.m.-3 a.m. daily and Sunday

American Express, Carte Blanche

CALIFORNIA

Round Trip Air Fare Plus Tax

FROM \$160 to \$206

WHY PAY MORE?

Howard Hillman, Student Rep.

LA 3-6100

Other Flights: Chicago & Florida

WILLIAM CLAUSON

guitarist — balladeer

"... A viking of song"

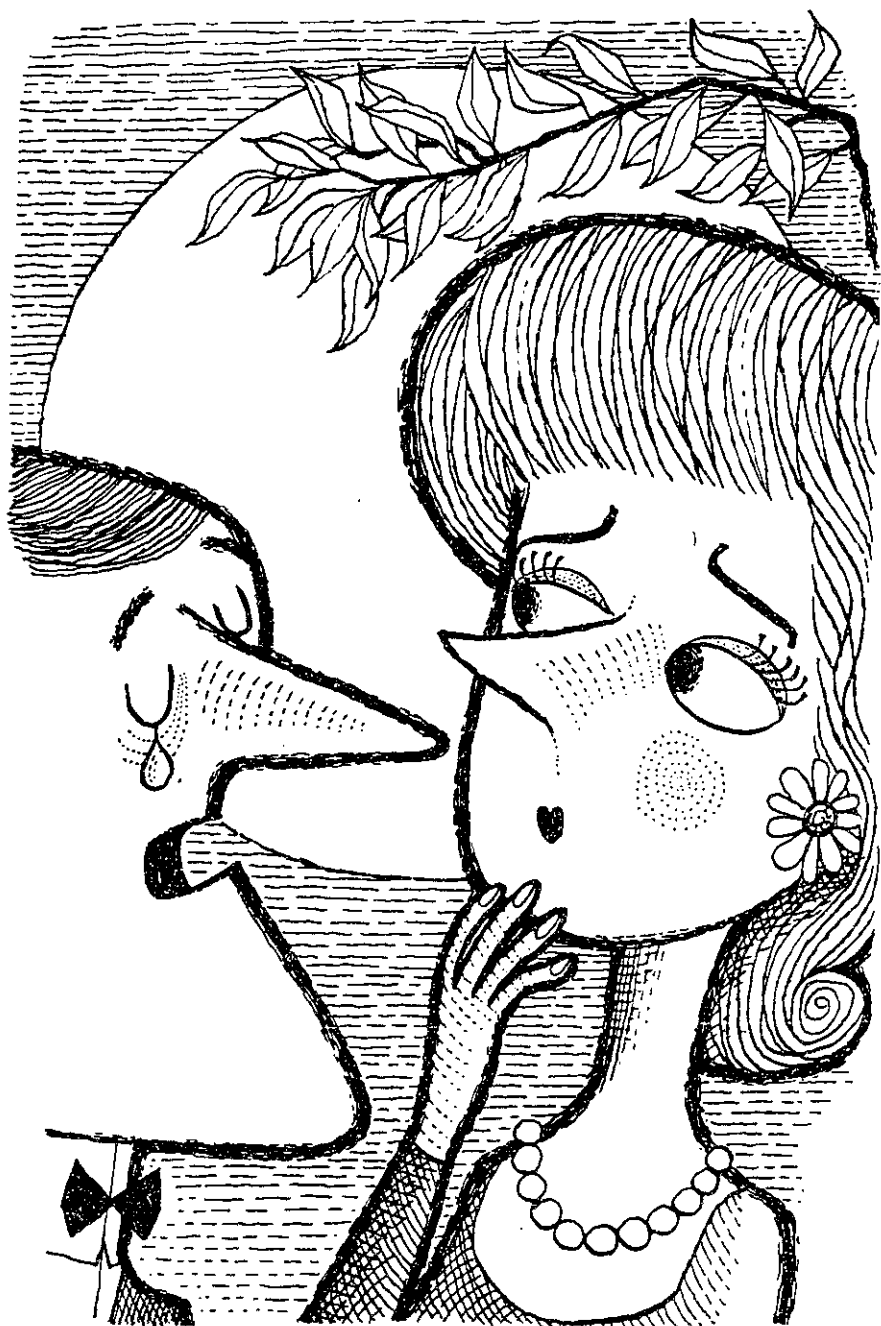
— Carl Sandburg

Saturday Eve., February 11th

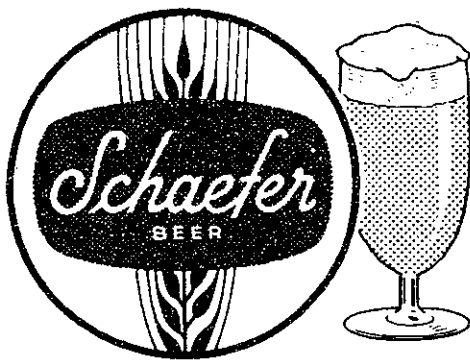
JORDAN HALL — KE 6-2412

Tickets: \$3.50, \$2.80, \$2.20

**I'D MISS YOU
SOMETHING AWFUL!**



Make sure you choose
the beer that gives first
beer pleasure every beer
through. Always make it
Schaefer all around.



THE F. & M. SCHAEFER BREWING CO., NEW YORK and ALBANY, N.Y.

WE HAVE OVER

300 M.I.T. GRADS

AND WE NEED MORE . . .

**FOR OUR 17 OPERATING COMPANIES AND
LONG LINES DEPARTMENT**

- to provide the ability and initiative needed for filling in behind the many middle and top level management people who will be retiring within the next few years
- to manage the engineering and operating of companies expanding at the rate of over two billion dollars annually

**FOR THE BELL TELEPHONE
LABORATORIES**

- to engage in basic research or technical planning for the development of new and improved systems
- to invent, develop or design components and systems in the fields of electronics and communications

FOR THE WESTERN ELECTRIC COMPANY

- to become leaders in an organization whose sales tripled since 1950
- to administer the manufacture, distribution and installation of communications equipment for the Bell System and national defense

FOR THE SANDIA CORPORATION

To fill our need for young engineers with outstanding technical competence for the non-nuclear phases in the development and design of atomic weapons. Sandia has grown to be one of the AEC's major installations in the U. S. and holds a key position in the weapons program.

*Please make arrangements for interviews through
your Placement Office.*



NEW ENGLAND TELEPHONE

**CAMPUS
INTERVIEWS
February
14, 15, 16**

- New England Telephone and Telegraph Company
- Bell Telephone Company of Pennsylvania
- Long Lines Department, AT&T Co.
- New York Telephone Company
- Southern New England Telephone Company
- Bell Telephone Laboratories
- Western Electric Company
- Sandia Corporation